Operation and maintenance instructions for air valve

Storage instructions

Handling
The handling of the valve has to be made with care, in order to avoid any shock, even accidental, which could damage it. Ends of the valve body or its flanges should be used for valve lift.

Storage
Generally the valves are supplied with plugs at the extremities, or in pallets banded with plastic film; if the valves are without packing and have to stay for long time in the stock before being installed, they must be stocked covering the passage of the valve, safeguarding in this way the interior parts and particularly the seat from contact with powder or dirt.

The valves must be stored in a location offering a good protection against the direct sun, the rain and all other atmospheric elements. In absence of a right place the valves have to be wrapped with a cellophane or plastic sheet, if possible of dark color.

Accessories and spare kits storage

1- Gasket
Normally the gaskets are made with a rubber quality which is sensitive to the sunlight. Therefore it is usual to store such rubber parts in an area protected from the sunlight, in order to avoid their deterioration. If such conditions are not available, rubber parts should be then at least protected by cellophane or plastic sheets of dark color.

2- Bolts
The requested flange bolting is normally packed in a sack or a box equipped with a tag indicating the number and the type of the packed bolts. It is absolutely necessary to keep them in the original condition of delivery,

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avoiding putting them in contact with material which could damage them. Generally the bolting is slightly lubricated before delivery; any contact with dirt or dust could, in extreme cases, damage the threads and prevent their future mounting.

Installation instructions

Preliminary inspection
Before mounting the valve in the pipeline, it should be controlled that no dirt or dust or external particles are contained in the valve body and in particular that the valve seat is clean. Every clamping screw should be checked and any loosened screw should be tightened.

Mounting
The mounting of every valve must be effectuated without pressure in the pipe. A sufficient space should be provided around the valve to permit its usual operation, as well as any eventual setting or future maintenance work.

It's important to do not collocate the air valves near curves with an important angle or too near to pumping station, in which the gas formation it's elevated but turbulent. If installed in this particular points it's advised to use long connection pipes to place higher the air valves avoiding any malfunction in case of sudden hydraulic condition variations.

The mounting position of air valves is with vertical axis. This is necessary because the floats works with the gravity force: a different inclination can modify the values of pressure for the opening/closing of the air valve.

The pipeline should be as free as possible from welding, scraps, mounting accessories, dirt, etc. The cleanest the pipe is kept during the installation, the less trouble will be produced. Afterwards if the transported fluid in the system contains a lot of external solid particles, it's recommended to install in the upstream side of the valve a strainer.

In case of flanged connection, the flange should be located perfectly in the centerline of the pipe and absolutely parallel. The centring can be made visually from the surface of the flange. The bolts have to be clamped gradually in alternate way.

In case of threaded connection use Teflon to ensure the hydraulic seal.

Start up
After the mounting of the valves on the pipeline it must be verified that the coating has not been damaged. In case it's advised to repair the coating to avoid the formation of rust.

In the filling phase it's necessary to open the isolating device and to verify that no anticipated closing of the float happens. This problem can be caused from a high speed of the water in the pipe, that's why it's advised to have always a slow filling velocity (about 1 m/s).

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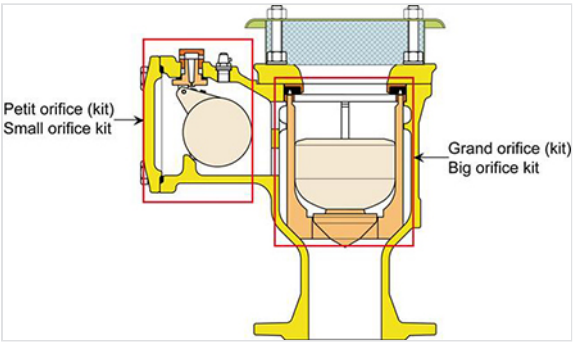
Use instructions
The seal is realized with one or two floats (with materials suitable for potable water) that are pushed by the water pressure and by their weight coming in contact with the gaskets to insure the seal.

Manoeuvre
The valves are completely automatic: no external intervention it's necessary during the functioning.

Exercise condition
The standard UNI EN1074-1-4 fixes the admissible temperature for the water: from 0° C (excluded freezing) to 40° C.

There are not any standard references about the number and positioning of air valves on the pipeline. In the common installations it's advised to install a degassing air valve in every high point of the pipeline and a double (or triple) function every kilometres in case of rectilinear profile.

Maintenance instructions



Ordinary maintenance
The air valves are designed, manufactured and tested to guarantee the maximum liability and endurance. In the standard version the choosing of materials is made paying attention to the usual types of fluid and the common exercise conditions: all the parts subjected to wear are perfectly self-lubricated and do not need particular maintenance. If the valves must work in extreme conditions, special versions must be ordered.

The efficiency of hydraulic equipments during their life is generally connected to the exercise conditions and to the type of fluid. It's advised to plan periodical inspection according to the type of valve and to the main function of the same valve.

For the air valves it's recommend to verify twice each year that there aren't any deposits or incrustations that can compromise the mobility of the float and/or the integrity of the seals.

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Operation	Year 0,5	Year 1	Year 1,5	Year 2	Year 2,5	After 5 years
Verify degassing function using the control valve	yes	yes	yes	yes	yes	Inspection two times for year
Verify the seal of filling orifice	yes	yes	yes	yes	yes	Control at every inspection
Verify the clamping of bolts of flanges	yes	yes	yes	yes	yes	Control at every inspection

Verify of the degassing function:
If the degassing orifice is well working when opening the control valve, only a little quantity of air must go out. If the flow of air is long, it means that the float is embedded in closed position and there's a big sack of air in the valve.

In this case it's necessary to:
- Close the isolating device;
- Remove the cover of air valve;
- Clean the internal parts and verify the integrity of various components;
- If there's some relevant wear sign it's necessary to replace the gasket seal or the float;
- Close the valve with its cover and re-open the isolating device.

In case of failure of hydraulic seal:
This anomaly can be caused by the deposit on the seat of material suspension that builds-up during the functioning or it is caused by the blocking of float on the guides.

In this case it's necessary to:
- Close the isolating device;
- Remove the cover of air valve;
- Clean the internal parts and verify the integrity of various components;
- If there's some relevant wear sign it's necessary to replace the gasket seal or the float;
- Close the valve with its cover and re-open the isolating device.

Extraordinary maintenance
In presence of particular exercise conditions (not filtered or particularly aggressive water, incrustations) or damages due to external cause, it's possible that an extraordinary maintenance is needed. The operations of extraordinary maintenance that can be made directly on site are the replacement of gasket and the replacement of floats.

All the operation have to be effectuated after the complete emptying of the pipe (total absence of pressure) to avoid any risk to the people during this operations.

In case of single function (degassing) air valve or double function (emptying/filling) consider only the respective spare kits.

Maintenance of filling/empying function

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Please refer to the technical data sheet of spare parts for details.

The spare kits contains both the gasket that the float group.

Maintenance of degassing function
Please refer to the technical data sheet of spare parts for details.

The spare kits contains both the gasket that the float group.

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